

Claims

- [c1] 1. A method of designing a scanning head for a scanner, wherein the scanner has a platform and a scanning head with the scanning head capable of moving along a scanning direction to scan a document placed on the platform, the method at least including:
- providing a shell body of the scanning head having a long side, wherein a length of the long side is smaller than a length of the platform along a direction perpendicular to the scanning direction;
 - providing a scattering light source mounted on the long side of the shell body for producing a parallel beam of light, wherein a length of the scattering light source is smaller than or equal to the length of the long side of the shell body;
 - providing a plurality of reflecting mirrors within the shell body;
 - providing a lens within the shell body; and
 - providing a photo-sensor within the shell body, wherein the parallel beam from the light source projecting onto the platform will sequentially pass through the reflecting mirrors and the lens to arrive at the photo-sensor after reflection.
- [c2] 2. The method of claim 1, wherein the reflecting mirrors have a length smaller than or equal to length of the scattering light source.
- [c3] 3. The method of claim 1, wherein a length of the parallel light beam projecting onto the platform is larger than or equal to the length of the platform in a direction perpendicular to the scanning direction.
- [c4] 4. The design method of claim 1, wherein the scattering light source

includes a scattering lamp tube.

- [c5] 5. A method of designing an optical path for a scanner, wherein the scanner has a platform and a scanning head, and the scanning head is capable of moving in a scanning direction to scan a document placed on the platform, the method including:
- providing a scattering light source mounted on the scanning head;
 - projecting a parallel beam from the scattering light source onto the platform to produce a scan line;
 - defining a length of the scan line as a maximum width of scanning on the document;
 - providing a plurality of reflecting mirrors sequentially positioned along an optical path beyond the document;
 - providing a lens positioned along an optical path beyond the set of reflecting mirrors; and
 - providing a photo-sensor along an optical path beyond the lens, wherein the parallel beam from the light source projecting onto the platform sequentially passes through the reflecting mirrors and the lens to arrive at the photo-sensor after reflection.
- [c6] 6. The design method of claim 5, wherein the scattering light source includes a scattering lamp tube.
- [c7] 7. The design method of claim 5, wherein the reflecting mirrors has a length smaller than or equal to the length of the scattering light source.
- [c8] 8. The design method of claim 5, wherein a length of the scan line is an optimal width of the window on the platform.

- [c9] 9. An outer casing and a platform for a scanner, at least comprising:
an outer casing having an opening section, wherein lower edges of the opening section have supporting surfaces; and
a platform on the supporting surfaces, wherein an area of the platform is identical to an area of the opening section.
- [c10] 10. A scanning head for a scanner, wherein the scanner has a platform for putting a document, and the scanning head is capable of moving forward in a scanning direction to scan the document, the scanning head at least comprises:
a shell body with a long side, wherein a length of the long side is smaller than a length of the platform in a direction perpendicular to the scanning direction;
a scattering light source mounted on the long side of the shell body for producing a parallel beam of light, wherein the scattering light source has a length smaller than or equal to the length of the long side of the shell body;
a plurality of reflecting mirrors within the shell body;
a lens within the shell body; and
a photo-sensor within the shell body, wherein the parallel beam from the light source projecting onto the platform sequentially passes through the reflecting mirrors and the lens to arrive at the photo-sensor after reflection.
- [c11] 11. The scanning head of claim 10, wherein the scattering light source includes a scattering lamp tube.

[c12] 12. The scanning head of claim 10, wherein the reflecting mirrors has a length smaller than or equal to the length of the scattering light source.

[c13] 13. A scanner for scanning a document, at least comprising:
an outer casing with an opening section;
a platform over the opening section for putting the document;
a scanning head within the outer casing, wherein the scanning head is capable of moving forward in a scanning direction to scan the document, wherein the scanning head further includes:
a shell body with a long side, wherein a length of the long side is smaller than a length of the platform in a direction perpendicular to the scanning direction;
a scattering light source mounted on the long side of the shell body for producing a parallel beam of light, wherein the scattering light source has a length smaller than or equal to the length of the long side of the shell body;
a plurality of reflecting mirrors within the shell body;
a lens within the shell body; and
a photo-sensor within the shell body, wherein the parallel beam from the light source projecting onto the platform sequentially passes through the reflecting mirrors and the lens to arrive at the photo-sensor after reflection;
a linear guide within the outer casing for guiding the scanning head; and
a driving device within the outer casing for driving the scanning head.

[c14] 14. The scanner of claim 13, wherein the scattering light source includes

a scattering lamp tube.